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Integrated Safety Management System Description

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PERIODIC REVIEW		
Performed By	Date	Next Review Date

APPROVAL PAGE

Listed below are the personnel responsible for the preparation, review, and approval of this plan. Signatures for each have been provided on OSMS Form 4320, *Document Review & Approval Form*.

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REVISION LOG			
Revision	Effective Date	Description of Change	Pages Affected
0	10/01/2025	Initial release by MCSA to replace existing ISMS Programs/Plans as part of the OSMS Contract Supersedes ISMS Plans (DUF6-PLN-040, FBP-PM-PDD-00001, ISSC-ESH-PL-010, CP2-HS-1000) for the scope of work included in the OSMS Contract.	All
1	10/01/2025	Incorporate PPPO comments	All

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ACRONYMS

CFR	Code of Federal Regulations
DEAR	Department of Energy Acquisition Regulation
DOE	U.S. Department of Energy
DSA	Documented Safety Analysis
DUF6	Depleted Uranium Hexafluoride
EMS	Environmental Management System
ERMS	Electronic Records Management System
ERPP	Environmental Radiation Protection Program
ES&H	Environment, Safety, and Health
ESH&Q	Environment, Safety, Health and Quality
FBP	Fluor BWXT Portsmouth LLC
FP	Fire Protection
FRNP	Four Rivers Nuclear Partnership
HA	Hazard Analysis
ISM	Integrated Safety Management
ISMS	Integrated Safety Management System
ISSC	Infrastructure Support Services Contractor (SST)
MCSA	Mission Conversion Services Alliance
NCS	Nuclear Criticality Safety
O	Order
O&M	Operations and Maintenance
OSHA	Occupational Safety and Health Administration
OSMS	Operations and Site Mission Support
P	Policy
POMC	Performance Objectives, Measures, and Commitments
PPE	Personal Protective Equipment
PQAP	Project Quality Assurance Plan
QA	Quality Assurance
RPP	Radiation Protection Program
SMP	Safety Management Plan
SOW	Scope of Work
SRDs	System Requirements Documents
TRC	Total Recordable Cases
TSR	Technical Safety Requirements
USQ	Unreviewed Safety Question

EXECUTIVE SUMMARY

This Integrated Safety Management System Program, hereafter entitled Integrated Safety Management System (ISMS) program description, reflects Mission Conversion Services Alliance's (MCSA's) approach for integrating safety into all aspects of work planning and execution for operations and maintenance (O&M) activities of the Operations and Site Mission Support Services (OSMS) Project. This integration will be in accordance with United States Department of Energy (DOE) guidance pertaining to integrated safety management (ISM), the term safety encompasses protecting the environment (including environmental compliance, pollution prevention, resource conservation and waste minimization), as well as occupational/industrial safety, health, and radiation protection.

This ISMS program description has been developed in compliance with the Contract Title 10 Code of Federal Regulations (CFR) Part 830, Nuclear Safety Management, Subpart A-Quality Assurance Requirements; DOE P 450.4A, Change 1, Integrated Safety Management Policy; 10 CFR 835, Occupational Radiation Protection; and 10 CFR 851, Worker Safety and Health Program;

This Program supersedes the ISMS Plans/Programs of the currently existing contractors for the scope now included in the OSMS Project (e.g. DUF6-PLN-040, FBP-PM-PDD-00001, ISSC-ESH-PL-010, CP2-HS-1000). The ISMS Program works in conjunction with the OSMS Project Worker Safety and Health Plan (WSHP).

The Project's ISMS Program for OSMS is implemented primarily through the management systems defined in the Project Quality Assurance Plan (PQAP). Consistent with 10 CFR 830, Subpart A, the PQAP integrates the ten-quality assurance (QA) criteria with the five core functions and eight guiding principles of ISMS as defined in this ISMS program description, thereby ensuring a single integrated management system for the Project. To ensure ISMS implementation and continuous improvement, assessments will be performed in accordance with the PQAP and its implementing assessment procedures as defined in DOE O 414.1D, Change 2, Quality Assurance.

The OSMS Project's ISMS Program is also supported by other key Project-specific documents (e.g., Project Management Plan; Regulatory and Permitting Management Plan; Cylinder Surveillance and Maintenance Plan; Records Management Plan; Safety Management Program Descriptions; the Worker Safety and Health Program; and the associated implementing procedures/documents for these and other supporting plans).

1 INTRODUCTION

The ISMS program description reflects MCSA's approach to the integration of environmental protection and worker health and safety into all aspects of work planning, performance, and continuous improvement. This ISMS program description ensures a streamlined approach and facilitates implementation.

For the purposes of this ISMS program description, safety encompasses protecting the environment (including environmental compliance, pollution prevention, resource conservation, and waste minimization), as well as occupational/industrial safety, health, and radiation protection. Other programs including engineering, procurement, fire protection, emergency preparedness, maintenance, training, and chemical safety have utilized the elements of ISMS in their development and thereby support MCSA's ISMS program.

This ISMS program description has also been developed to: (1) demonstrate compliance with the Contract; applicable requirements of 10 CFR 830, Nuclear Safety Management, Subpart A-Quality Assurance Requirements; DOE O 450.4A, Change 1, Integrated Safety Management Policy; 10 CFR 835, Occupational Radiation Protection; 10 CFR 851, Worker Safety and Health Program; and (2) describes how the ISMS process is integrated into the Project's activities.

This ISMS program description references the Project's QA program approach to implementing a strong environment, safety, and health (ES&H) posture within the requirements of the Project and without compromise to ES&H objectives. Consistent with 10 CFR 830, Subpart A and DOE O 414.1D, Change 2, Quality Assurance, the Project Quality Assurance Plan, integrates the ten QA criteria with the five core functions and eight guiding principles of ISMS as defined in this ISMS program description. The Project's ISMS Program also relies on other key Project-specific documents (e.g., Project Management Plan, and implementing procedures for various supporting plans).

Implementation of the PQAP is fully consistent with and supportive of the principles and functions of the ISMS. The expectation in the PQAP is that all work meets established standards and requirements allowing work to be completed safely within established procedures. The PQAP also describes processes that are utilized to seek continuous improvements by identifying and correcting deficiencies and preventing their recurrence. Subcontractors performing work at the sites will also utilize this ISMS program description and its implementing documents to the extent that such requirements are incorporated into subcontractor documents.

Subcontractors may utilize equivalent implementing documents as approved by MCSA; however, the documents must implement the requirements of this ISMS program description. The PQAP will provide the overall assessment authority to assure that MCSA, its member organizations, and subcontractors comply with the requirements of this ISMS program description.

One of the purposes of this document is to ensure that an adequate ISMS process has been identified and to facilitate an understanding of the context within these control mechanisms. It also provides descriptions of processes and their interrelationships.

This ISMS program description facilitates an understanding by Project personnel of the ISMS process and provides a model from which focus on excellence in performance and improvements to the overall ISMS process can be discussed and considered.

The ISMS program description is organized as follows:

Section 2. "SAFETY MANAGEMENT SYSTEM COMMITMENT AND CONTROLS OVERVIEW" introduces the Project's related commitments and policies and describes the identification of applicable requirements.

Section 3. "ROLES AND RESPONSIBILITIES" introduces specifics related to the organization and roles and responsibilities of management, workers, and subcontractors.

Section 4. "INTEGRATED SAFETY MANAGEMENT SYSTEM OVERVIEW" describes how the five core functions and eight guiding principles of DOE ISMS are addressed for the Project through programs and processes.

Section 5. "FUNCTIONS" describes how MCSA implements the ISMS Core Functions and Guiding Principles.

Section 6. "MAINTAINING AND IMPROVING INTEGRATED SAFETY MANAGEMENT" describes the Project's approach to ensuring that work continues to be conducted efficiently and continuously improves in a manner that protects the health and safety of the worker.

Section 7. "SUPPORTING INFORMATION" lists the major documents and/or requirements implemented by the ISMS program description.

Implementation of this ISMS program description requires that the organization integrate safety including environmental protection into all aspects of work planning and execution, using the guiding principles and core functions. Integration means that all systems and programs are designed to fit together to ensure safe and efficient performance of work.

2 SAFETY MANAGEMENT SYSTEM COMMITMENT AND CONTROLS OVERVIEW

The following subsections and referenced attachments provide an overview of MCSA's commitment and policy related to the Project's ISMS process that promotes the company's core values and commitment to ensuring the safety and health of every worker, the public, and the environment

2.1 Environment, Safety, and Health Policy

MCSA has established an ISMS Program that promotes the company's core values including a commitment to providing a safe and healthy workplace for employees and to protecting the public and the environment. The objective of MCSA's ISMS Program is to systematically integrate safety, health, QA, the Environmental Management System (EMS) including environmental management, environmental protection, environmental compliance, pollution prevention, resource conservation, and waste minimization into management and work practices at all levels so that work is performed safely and in a compliant manner that is protective of the worker, public, and environment. MCSA's management commitment to ISM excellence is established in the Environment, Safety and Health Policy.

MCSA's ISMS Program integrates and implements an EMS graded to the activities being performed. Through implementation of the integrated ISMS/EMS, effective protection of workers, the surrounding communities, and the environment can be achieved while meeting operating objectives to comply with legal and other requirements.

2.2 Environment, Safety and Health Commitment

Safety leadership starts at the top level of management. MCSA's President & Program Manager and Senior Managers are responsible for protecting the environment; the safety, and health of every worker in the organization, including those employed by our subcontractors; as well as that of visitors and the public. Management's commitment to these responsibilities establishes and flows down these standards to all employees, subcontractors, and subcontractor employees. Objectives related to the Project's commitments are provided in the following paragraphs.

2.2.1 Safety and Health

MCSA protects the safety and health of workers and the public by identifying, analyzing, and mitigating hazards and utilizing sound work practices. Safety is not compromised for the sake of Project objectives (cost and schedule). All of MCSA's employees and subcontractors are held responsible for complying with requirements during all work activities.

2.2.2 Environmental Management System

The OSMS Project has developed and implemented an EMS. The EMS integrates environmental protection, environmental compliance, pollution prevention, and continual improvement into work planning and execution throughout all work areas as a function of the ISMS Program. The EMS is based upon the elements of the International Organization of Standardization 14001:2015 as incorporated in the Environmental Management System Plan. Through implementation of the integrated ISMS/EMS, effective protection of workers, the surrounding communities, and the environment can be achieved while continuing to meet operating objectives and while complying with legal, contractual, environmental, regulatory, and other requirements.

2.2.3 Facility Safety Programs

Controls are developed to ensure that no undue risk of accidents occurs that could adversely affect the public, workers, or environment. Controls are established in accordance with a hazards-based graded approach and supplemented with a defense-in-depth concept to prevent accidents, as well as to limit consequences should accidents occur.

2.2.4 Safety Management System Integration with Quality Assurance

Effective implementation of QA requirements supports the principles and functions of ISMS. In this regard, the QA program ensures compliance with approved standards and requirements, so that the expectation for safe work within controls is met, and workers, the environment, and the public are protected from harm. The MCSA management systems assure that quality and safety requirements are properly integrated to achieve their objectives.

2.2.5 Contractor Assurance System

The Contractor Assurance *System* provides the assurance of mission success demonstrated by environment, safety, QA, project management and operational business excellence achieved through implementation of:

- Well defined requirement identification, adoption, and implementation processes
- Graded and integrated risk management processes applied to MCSA's activities.

- Functional area improvements driven by appropriate performance metrics, management and self-assessments, and effective actions.
- A robust and pervasive culture that stresses safety and quality.

2.2.6 Worker Involvement

MCSA manages the Project in a manner that encourages the involvement of employees in the identification and control of hazards in the workplace. Workers have the right and responsibility to express concerns about safety and to seek resolution of those concerns. Mechanisms for ensuring worker involvement include participation in job planning, walk-downs, pre-job briefings, Safety First suggestions, safety suspensions/stop work actions, and post-job feedback.

Work will be brought to a safe condition and/or stopped rather than continue in an unsafe manner. Individuals within the Project have the right and obligation to stop work when they believe it cannot be conducted in a safe manner, is detrimental to workers and/or public safety, quality, or it has an unacceptable impact on the environment. The process of pausing, suspending, and/or stopping work is described in various procedures.

2.2.7 Stop Work

Work will be brought to a safe condition and/or stopped rather than continue in an unsafe manner. Individuals within the Project have the right and obligation to stop work when they believe it cannot be conducted in a safe manner, is detrimental to workers and/or public safety, quality, or it has an unacceptable impact on the environment. The process of pausing, suspending, and/or stopping work is described in various procedures.

2.2.8 Environment, Safety and Health Culture

MCSA is committed to a culture that focuses on zero-accident performance. MCSA's commitment adheres to the premise that all accidents are preventable. This commitment starts at the top of the organization with the President & Program Manager and flows down through all managers and employees of the organization, including subcontractors. MCSA's commitment creates a safe working environment that empowers employees to "take charge" of their own safety and to work with supervision to remove unsafe conditions/actions prior to their development. This commitment shall be institutionalized into all phases of the Project and is documented in the MCSA's ES&H Policy and OSMS-POL-048, Safety Culture.

2.3 Safety Management Systems/Controls

A set of underlying management systems and practices are integral to implement successfully any process or program. These systems provide the procedures and other management tools required to establish MCSA's integrated approach to safety management.

2.3.1 Budget and Financial Management

MCSA's budget and financial management system includes the following business management functions: Project work breakdown structure, scope definition, performance milestones, cost estimate, budget, risk-based analysis, critical path schedule logic, project schedule, charge code structure, cost accounting, funds management, and baseline change control. These functions assist the line organizations in defining the scope of work (SOW) and monitoring progress. They are integrated into the Project Baseline and are maintained under configuration management via

a joint DOE/MCSA baseline change control process. The Baseline provides the basis for establishing annual work scope and goals which are measured through performance-based incentives and performance objectives.

2.3.2 Conduct of Operations

Performance of the scope of work for the OSMS Contract is based on well-developed industrial operations practices and DOE O 422.1, Change 4, Conduct of Operations. Implementation of these practices results in an elevated level of performance and, therefore, contributes to safe and reliable operation. The primary consideration in conduct of operations is the health and safety of workers, the public, and protection of the environment. Conduct of operations is defined in MCSA's Conduct of Operations Manual, Environmental Management System Plan, among others.

This ISMS program description describes the management methods with which the conversion facilities are operated and maintained and is implemented using detailed plans and procedures. The process of developing procedures includes an identification of the hazards and development of appropriate controls which are then incorporated into procedural steps.

2.3.3 Configuration Management

Configuration management for MCSA is integrated into company procedures. The Configuration Management Plan establishes expectations for configuration management for structures, systems, and components identified in associated safety basis documents as safety significant or defense in depth, thereby ensuring work is performed within controls. Control of changes and as-found conditions is implemented through the change control process.

2.3.4 Criticality Safety

Criticality safety is an integral part of the safety aspects of operations of the cylinder storage yards. Nuclear criticality is precluded in the OSMS Project by minimizing the likelihood of a fissile cylinder entering a facility without authorization. The nuclear criticality safety (NCS) program is outlined in the Nuclear Criticality Safety Process. The process establishes the policy, guidelines, rules, and regulations for the NCS Program to ensure that nuclear criticality hazards are evaluated and NCS limits and controls are established and implemented to provide worker protection, environmental protection, and public safety.

2.3.5 Emergency Management

The *Paducah Site Emergency Management Plan*, and *Portsmouth Site Emergency Plan*, describe the established site-wide emergency management system and plan. The site-wide emergency management plan provides a comprehensive description of emergency preparedness and response to operational emergencies, which may occur at the site.

2.3.6 Environmental Compliance and Protection

Environmental management is an integral element of MCSA's safety management program. MCSA's environmental management goals, roles, and responsibilities are described in the Regulatory and Permitting Management Plan.

The environmental management program is integrated into the ISMS through the following Project plans and documents:

- Regulatory and Permitting Management Plan
- Waste Management Plan
- Environmental Management System Plan
- Pollution Prevention and Waste Minimization (P2WM) Plan
- Environmental Radiation Protection Program
- Environmental Compliance Assessments
- Regulatory Permits
- State Historical and Preservation Offices
- Ohio's Director's Final Findings and Orders
- Kentucky Agreed Order

2.3.7 Hazardous Material Protection

The Hazard Analysis process identifies and documents work-related hazards associated with a specific SOW, mitigating controls/actions, personal protective equipment (PPE), and other measures necessary to provide adequate worker protection. This procedure, in concert with the safety basis documents, ensures rigorous identification and analysis of hazards and hazard control development and implementation.

An important aspect of the hazard control program is hazardous material protection that is implemented through the Hazard Communications Program which is established to protect human health and the environment by informing workers of chemical hazards present and the appropriate protective measures. The hazard control program applies to hazardous chemicals and materials used at the MCSA-managed DOE facilities, including hazardous chemicals used and generated in the workplace, and consumer products that are used by MCSA in a manner or quantity that significantly differ from an average consumer's manner or quantity of use.

Procedures have been established for identifying and procuring hazardous chemicals and materials, maintaining a chemical inventory, assessing work area hazards, communicating information to workers, implementing appropriate engineering and administrative controls, as well as methods of disposing of used/waste/excess chemicals and their containers.

2.3.8 Fire Protection

Fire Protection (FP) is an integral part of the safety aspects of operations of MCSA's facilities. The FP program is outlined in various Programs and Procedures which define the scope, roles and responsibilities, organizational structure, and requirements for implementing FP program activities. The ISMS program description also defines the administrative program responsibilities for ensuring that MCSA maintains compliance with FP requirements when managing or overseeing subcontractors.

The FP program is designed to guide MCSA's efforts to minimize the potential for:

- The occurrence of a fire or fire-related event
- A fire that causes an unacceptable release of hazardous or radiological material that threatens the health and safety of employees, the public, or the environment
- Vital DOE programs suffer unacceptable interruptions because of fire and fire-related hazards.
- Excessive property losses from fire and fire-related events
- Critical process controls and safety systems being damaged because of fire and fire related events.

Fire hazards analyses for the MCSA facilities define the fire hazards associated with the facility, the adequacy of designed FP systems, and controls in reducing fire losses.

2.3.9 Industrial Hygiene

The OSMS Worker Safety and Health Program summarizes the MCSA's approach to meeting the requirements of 10 CFR 851, Worker Safety and Health Program. This Worker Safety and Health Program is implemented through policies and procedures which have been established to ensure hazardous operations are conducted in a manner that safeguards the health and safety of workers, the public, and the environment. The various exposure hazards or workplace stresses that cause sickness, impaired health, or significant discomfort in workers can be classified as chemical, physical, biological, or ergonomic. Hazards are assessed and appropriate controls are specified in order to eliminate or reduce the risk(s). Hazard analyses (HAs) are performed to anticipate, recognize, evaluate, and control exposure to hazards or stresses arising in or from the workplace. Workers are protected from workplace hazards through the implementation of hazard elimination, engineering controls, administrative controls, and/or personal protection equipment.

2.3.10 Operating Experience — Lessons Learned

MCSA's Lessons Learned program is implemented throughout the work control process and is integral to work planning/ISMS feedback and improvement process.

2.3.11 Nuclear and Facility Safety

Nuclear Hazard Category 2 and 3 facilities have a safety basis document prepared in accordance with 10 CFR 830, Subpart B, Nuclear Safety Management, and DOE-STD-3009-94, Preparation Guide for U.S. Department of Energy Nonreactor Nuclear Facility Documented Safety Analyses.

Documents and activities which could affect the safety basis are reviewed in accordance with the Unreviewed Safety Question Process.

2.3.12 Occupational Safety and Health

The MCSA's occupational safety program establishes standards for worker safety through the implementation of industrial safety requirements contained in 10 CFR 851, Worker Safety and Health Program. Programs and procedures are in place to implement the requirements in these standards and to prevent or minimize injuries, illnesses, and accidental losses. The Worker Safety and Health Program (OSMS-PLN-074) is the primary document that implements the DOE requirements.

2.3.13 Occurrence Reporting

The MCSA's occurrence-reporting program requires reporting, tracking, and trending of occurrences involving industrial and/or facility safety, health, property, operations, and/or the environment.

2.3.14 Procedures

Technical procedures are developed to convey and institute management policies for operations involving the safety of workers, the public, and the environment. The procedure, OSMS-U-GFP-0015, Technical Procedure Development, establishes the requirements for the preparation, review, approval, issuance, revision, and cancellation of implementing procedures, policies, instructions, and guidelines.

Administrative procedures are developed under procedure OSMS-U-ADM-00001, Administrative Procedure, Preparation, Revision, and Approval, that emphasizes administrative functions/requirements applicable to administrative procedures vs. more specific and detailed instructions contained in a technical procedure.

2.3.15 Quality Assurance

The Project Quality Assurance Plan, OSMS-PLN-003, Project Quality Assurance Plan, describes MCSA's QA Program and its organization. It provides the primary requirements for the integration of quality functions into all aspects of MCSA activities. The Quality Implementation Plan demonstrates how quality requirements are implemented through MCSA procedures.

2.3.16 Radiation Protection

The Radiation Protection Program (RPP), OSMS-PLN-007, Radiation Protection Program, is defined in the Radiation Protection Program. The purpose of the RPP is to minimize exposure to ionizing radiation for workers, the public, and the environment to levels that are as low as reasonably achievable and to manage the Project in a manner that ensures that radiation exposure of the workforce, the environment, and the public is controlled well below regulatory limits. Implementation of this objective facilitates the Project's efforts to implement all five core functions but, most specifically, the fourth core function to "Perform Work within Controls."

MCSA developed an Environmental Radiation Protection Program (ERPP) to ensure compliance with the requirements of DOE O 458.1, Change 4, *Radiation Protection of the Public and the Environment*. MCSA has implemented an appropriate structure of management and administrative measures, as necessary, to ensure the authorized activities are conducted in accordance with the ERPP.

2.3.17 Radioactive and Hazardous Waste Management

The radioactive and hazardous waste management program establishes processes to characterize, package, control radiological and hazardous waste, and protect all receptors. Waste management policies, plans, and/or procedures will be established to address:

- Waste stream identification/profiling
- Waste information reporting

- Waste acceptance criteria
- Waste characterization, segregation, and recycling
- Onsite and offsite treatment, storage, and disposal

2.3.18 Records Management

MCSA's records management system identifies the current revision of controlled documents and provides controlled copies of approved documents to those performing work.

2.3.19 Standards Selection and Maintenance

A key element of ISMS is the selection of standards and maintenance of the standard set. This set is the result of a process for reviewing laws, regulations, and standards to determine applicability to the scope of project work. During the operation and maintenance phase of the Project, the DOE directives identified in Section J of the Contract, as well as applicable federal, state, and local rules and regulations, provide the requirements function for the Project.

Periodically, the Contractor Assurance Group monitors the DOE online database system, "Directives – Home Page Alerts" for changes (additions/deletions) in DOE Orders/Directives and federal regulations.

2.3.20 Training and Qualification

The training and qualification process assures skills needed for the workforce are identified and developed, and documents knowledge, experience, abilities, and competencies of the workforce for key positions requiring qualification. MCSA implements the requirements of DOE O 426.2, Change 1, Personnel Selection, Training, Qualification and Certification Requirements for DOE Nuclear Facilities. Given a specific work assignment, the training and qualification requirements in this training program are developed specifically for the work to be performed, maintained, and implemented using a graded approach in a standardized, comprehensive manner utilizing the systematic approach to training.

2.3.21 Work Control

The work control system encourages the involvement of employees in the identification and control of hazards in the workplace as part of the planning, pre-job discussions, and post-job feedback and lessons learned. Hazards are to be eliminated where possible or controlled through engineering/administrative controls with PPE as a last resort.

Workers have the right and responsibility to express concerns about safety and to seek resolution of those concerns, and they have the right and obligation to stop work when they believe it cannot be conducted in a safe manner, is detrimental to worker and/or public safety, quality, or has an unacceptable impact to the environment.

3 ROLES AND RESPONSIBILITIES

Two of the eight principles for an effective ISMS Program address roles and responsibilities that are specifically institutionalized as follows through the implementation of DOE Policy 450.4A Change 1, Integrated Safety Management Policy and 48 CFR 970.5223-1, Integration of environment, safety, and health into work planning and execution.

- Principle 1. Line Management Responsible for Safety. Line management is directly responsible for the protection of the public, the workers, and the environment.
- Principle 2. Clear Roles and Responsibilities. Clear and unambiguous lines of authority and responsibility for ensuring safety shall be established at all organizational levels within DOE and its contractor organizations.

Clear definitions of authorities, roles, and responsibilities related to implementation of the ISMS Program are defined in the following subsections. First, the MCSA organizational structure is defined, and then roles and responsibilities are addressed for DOE and MCSA management, employees, and subcontractors. Additional information on the Project's approach for implementing the established ISMS principles can be found in Section 4 *Integrated Safety Management System Overview*".

3.1 Department of Energy

DOE roles and responsibilities related to implementation of an ISMS Program are clearly defined in 48 CFR 970.5223-1, Integration of environment, safety, and health into work planning and execution; and DOE P 450.4A, Change 1, Integrated Safety Management Policy. Of particular importance, the implementation of the Project's ISMS program description is the responsibility of the Contracting Officer's Representative and the Project Manager. Among these are defining a budget (scope) for the Project, providing continuous effective oversight (feedback), and annually reviewing and, as necessary, approving the ISMS program description and related performance goals and matrices.

3.2 MCSA's Organizational Structure

MCSA's organizational structure has been established to ensure that roles, responsibilities, and reporting relationships are clearly recognized and understood. Roles and responsibilities have been defined for all levels of the Project organization to ensure effective communication during all phases of work planning and execution. The organizational structure of the Project can be found on the MCSA intranet website.

MCSA's President and Program Manager is responsible for all project activities within the contract SOW and for successful execution of the project activities. The President and Project Manager has the organizational freedom and authority to address problem areas in all activities and to initiate and effect corrective actions. Other managers, lead staff, and professional personnel assigned to the Project support the President and Project Manager in the execution of the Project activities.

For the purpose of this ISMS program description, line management includes the MCSA's President and Program Manager's direct reports (i.e., senior managers/directors), middle managers, and front-line supervisors.

One of the eight guiding principles in implementation of an ISMS program description is line management's responsibility for safety. The President and Program Manager, working with direct reports and with the support of the Environment, Safety, Health & Quality (ESH&Q) Manager, is responsible for implementing an effective safety program. The ESH&Q Manager reports directly to the President and Project Manager and exercises independent oversight authority of all MCSA's matters affecting safety and quality.

The ESH&Q Manager supervises a group of managers, safety professionals, and technicians that are responsible for identifying applicable environmental, safety, health, radiation protection and quality standards and requirements for each work activity and for the development, with worker input, of appropriate hazard controls to ensure that work is performed so as to protect the worker, the public, and the environment. ESH&Q Manager key interfaces include:

- Operations Managers and line management to ensure that ISMS is effectively implemented.
- ESH&Q Manager to fully integrates ES&H into a comprehensive ISMS program.
- QA Program Manager to fully integrate QA into a comprehensive ISMS program.

Roles and responsibilities for personnel key to the implementation of ISMS are further defined in Project plans and implementing procedures as appropriate. Position descriptions define authority and responsibility for management and supervisory personnel.

3.3 Workers

All workers associated with the Project team are integral to the successful implementation of the defined ISMS program. It is at the worker level that core function Number 4, "Perform Work within Controls" is accomplished. Workers are personally involved in the ISMS process through the following:

- Documented training and qualifications as identified in the training program description.
- Identifying workplace hazards
- Participating in work control documents and procedure development and maintenance
- Following administrative controls (procedures)
- Providing feedback, including lessons learned
- Participating in incident investigations and self-assessments
- Exercising time out or stop work authority when concerns arise or conditions adverse to worker protection, public safety or environmental stewardship are discovered.

Worker involvement, feedback, and suggestions will be sought through the following:

- Proactive safety suggestion mechanisms such as employee teams
- Involving workers in safety and job planning walk-downs
- Pre-job and post-job briefings
- Development and review of HA, work packages, and procedures
- Interactive safety/toolbox meetings
- Near-miss reporting and interactive discussions of personal near-miss situations.

Line Managers and Supervisors clearly communicate expectations during briefings that address job-specific hazards and the means to mitigate them, and reviews of affected procedures, work

permits, and associated task-specific HAs. Line Managers and Supervisors encourage the participation of experienced and knowledgeable worker representatives. Prior to starting work, the supervisor will review and confirm jobsite conditions and will suspend work if changed conditions are discovered.

3.4 Subcontractors

Throughout the life of the Project, MCSA will manage subcontractors. These subcontractors function within the MCSA ISMS structure. MCSA controls their subcontractors in adherence with 48 CFR 970.5223-1, Integration of environment, safety, and health into work planning and execution. Subcontractor roles and responsibilities related to the implementation of ISMS are defined in subcontract documentation as well as subcontract submittals that are reviewed and approved by MCSA prior to conducting work. MCSA's prepared subcontract documentation, including requests for proposals, clearly states the Project's expectations related to ES&H performance and ISMS Program implementation.

MCSA's expectations for subcontractor compliance is most succinctly defined in OSMS Form 9063, ES&H Special Terms and Conditions. However, other programs including Work Control, subcontractor oversight/management, and procurement procedures reinforce and ensure compliance.

Subcontractors are evaluated based upon their previous safety and quality performances prior to contract award for work to be performed at the Project sites. This ensures that the subcontractors performing the work have a history of satisfactory safety performance, and that they can perform the SOW in a quality manner. Subcontractors performing work at the sites will utilize this ISMS program description and its implementing documents to the extent that such requirements are incorporated into subcontract documents.

Subcontractors may utilize equivalent implementing documents; however, the documents must implement the requirements of this ISMS program description. The flow down of requirements is performed through subcontractor procurement activities. Subcontractors are required to: (1) ensure that their employees are competent to perform the task assigned, and (2) have received General Employee Training and adequate task/hazard specific training. The performance of the subcontractor will be evaluated through MCSA's performance assessments in accordance with the PQAP to ensure ISMS implementation.

Required subcontractor submittals are reviewed to ensure that the subcontractor clearly understands the safety performance objectives and has in place the administrative processes necessary to implement an effective program. Many of the roles and responsibilities identified for MCSA personnel, along with other MCSA's required administrative controls (e.g., lockout/tagout, confined space entry, hot work, and excavation/penetrations) will also be applicable and utilized by subcontracted personnel.

4 INTEGRATED SAFETY MANAGEMENT SYSTEM OVERVIEW

DOE P 450.4A Change 1, Integrated Safety Management Policy, identifies the following six primary components of ISMS:

- Objective
- Principles

- Functions
- Mechanisms
- Responsibilities
- Implementation

The first three components are described in detail in the DOE policy. The last three are unique to each DOE prime contractor and are tailored by each according to the contractor's mission and organizational structure. This ISMS program description is the high-level description of the MCSA ISMS that discusses the mechanisms, responsibilities, and implementation specific to the Project.

4.1 Objective

The objective of ISMS is to provide a safe workplace and to perform work safely while protecting the workers, the public, and the environment. This ISMS Program defines implementation of ISMS by MCSA and its subcontractors.

4.2 Guiding Principles

The following discussion outlines the seven guiding principles of ISMS as established by DOE P 450.4A Change 1, Integrated Safety Management Policy. MCSA has also established guiding principle number eight (worker involvement), which is imperative to MCSA's ISMS implementation strategy success. The MCSA core mechanism for implementation is identified for each principle.

4.2.1 Line Management Responsibility for Safety

Line management is directly responsible for the safe and efficient conduct of work to ensure the protection of the public, the workers, and the environment. To ensure that line management understands its responsibility for safety, worker's position descriptions identify the requirements defined in this document and their responsibility that work is to be performed safely. Each line manager is held accountable for the Project's safety performance through his or her performance review. The concept is further enforced in lower-tier program procedures.

4.2.2 Clear Roles and Responsibilities

Clear and unambiguous lines of authority and responsibility for ensuring safety are established and maintained at all organizational levels. MCSA's qualification and training procedures define the process used to identify key roles and responsibilities and associated training requirements for MCSA personnel. Policies, plans, and procedures identify specific roles and responsibilities for the safe execution of work.

4.2.3 Competence Commensurate with Responsibilities

Personnel shall possess the experience, knowledge, skills, and abilities necessary to discharge their responsibilities. MCSA qualification and training procedures define the process for training and qualifying MCSA personnel.

4.2.4 Balanced Priorities

Resources shall be effectively allocated to address safety, programmatic, and operational considerations. Protecting workers, workers, the public, and the environment shall be a priority whenever activities are planned and performed.

4.2.5 Identification of Safety Standards and Requirements

Before work is performed, the associated hazards shall be evaluated and an agreed-upon set of safety standards and requirements shall be established which, when properly implemented, will provide adequate assurance that workers, the public, and the environment are protected from adverse consequences. MCSA and DOE have established and agreed to a set of standards and requirements, which are identified in Section J of the Contract.

4.2.6 Hazard Controls Tailored to Work Being Performed

Administrative and engineering controls that are designed to prevent and mitigate hazards shall be tailored to the function of work being performed and the associated hazards. Facility hazard categorization was performed in accordance with DOE-STD-1027-92, Hazard Categorization and Accident Analysis Techniques for Compliance with DOE O 5480.23, Nuclear Safety Analysis Reports and successor standards as defined in the OSMS Contract.

The DSA defines the requirements that must be implemented to maintain the safety envelope of the conversion facilities. The DSA, TSRs, Unreviewed Safety Questions (USQs) procedure, and work control requirements, including activity HAs, assure that hazards controls are tailored to the work being performed at the activity level.

4.2.7 Operations Authorization

The conditions and requirements to be satisfied for operations to be initiated and conducted are clearly established and agreed upon. This principle is implemented through the Conduct of Operations Manual.

4.2.8 Worker Involvement

Woven into the seven principles of ISMS is the need for worker involvement in all the five (5) core functions described in Section 5. MCSA's procedures require MCSA and subcontractor worker involvement, when appropriate, in job planning, hazard identification, pre- and post-job briefings, assessments, safety and employee team meetings, incident investigations, and procedure development.

5 FUNCTIONS AND MECHANISMS

The focus of the MCSA ISMS Program is to systematically integrate ES&H controls into management and work practices to mitigate the risk to which workers performing work are exposed. In managing the contract, MCSA implements five safety management functions:

- Define the SOW
- Analyze the Hazards
- Develop and Implement Hazard Controls

- Perform Work within Controls
- Provide Feedback and Continuous Improvement

The following sections address each of the five safety management functions and describe MCSA's method for applying them in our work. The guiding principles are evident throughout the sections. Figure 1 graphically illustrates MCSA's approach to incorporating the five core functions of ISMS into how MCSA does work.

5.1 Define the Scope of Work

The first step in the ISMS process is defining the work scope. Definition of the SOW begins with DOE's Project mission objectives as defined in the contract. The Project then develops the baseline documents, which include tasks to satisfy mission objectives. This information is then developed into an approved work breakdown structure that supports work execution.

5.1.1 Set Expectations

Performance and contractual metrics are established and agreed to with DOE as the mechanism for measuring the accomplishment of specific contract objectives. These metrics are based upon the approved baseline. The expectation that work be performed safely and in compliance with contract requirements is also clearly established and implemented through the work control procedure and the procedure system. Completing each task in a safe and environmentally sound manner helps ensure that both objectives and schedules are met. Performance, schedule, ES&H, and quality expectations are communicated through the Project organizations to all employees, and pollution prevention and waste minimization expectations and opportunities are discussed in the planning phase of the Project work development process.

External requirements, such as laws, rules, codes, standards, regulations, and Section J of the Contract, are examined for their applicability. Relevant criteria and requirements (functional and performance) are extracted and entered the system requirements documents (SRDs) that identify the project baseline mission milestones, requirements, and expectations.

5.1.2 Prioritize Tasks and Allocate Resources

MCSA and DOE have established mission scope, cost, and schedule baselines that have been used to determine the Project budget and operational targets. As program or project conditions emerge, changes from the original baseline plan may be required due to a variety of reasons. MCSA uses a baseline change control process to assure that changes in priorities, scope, cost, and schedule are appropriately reviewed and approved.

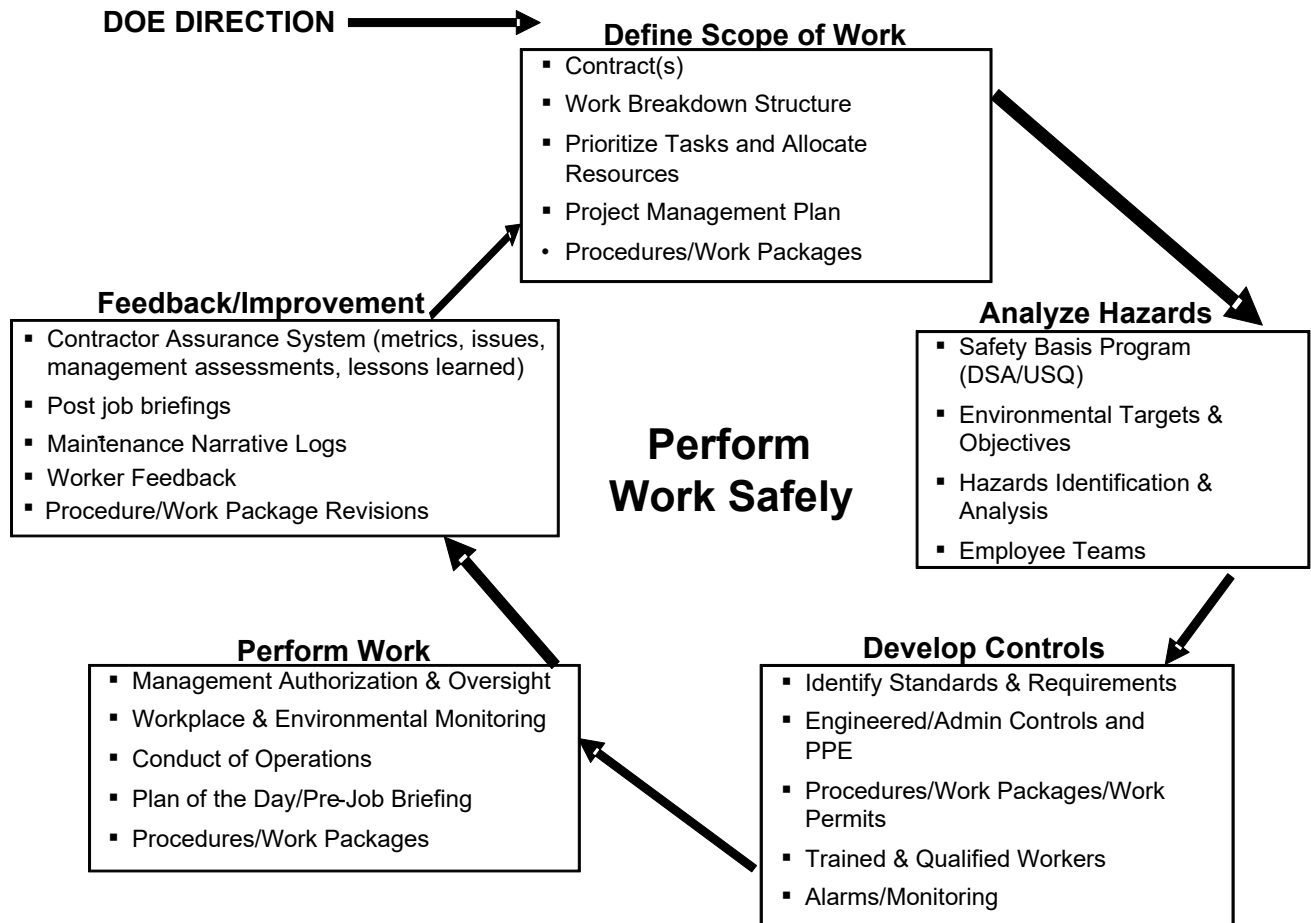


Figure 1. Elements of the Five Core Functions

5.2 Analyze the Hazards

The analysis of hazards addresses potential risks and vulnerabilities from credible accident scenarios at the facility level in the facility safety basis documents.

For specific scopes and when the tasks for performing work have been clearly defined, potential hazards are identified and analyzed for the defined work scope in accordance with MCSA's Hazard Analysis process to assure that appropriate measures are identified to prevent or mitigate potential exposure to the hazards. Based on the complexity and risks associated with the activity, work processes and environment are reviewed by an integrated multidiscipline team. This team analyzes all hazards to identify the controls necessary to perform the activity safely. This process includes examining the facility safety basis, risk assessments, and other available site data, interviewing people involved in the work processes, and performing site walk-downs. If existing information does not provide adequate data to identify hazards, sampling and characterization may be performed. After the hazards are identified, the HA development team documents the hazard assessment.

For subcontracted work, discrete subcontract packages are developed to facilitate the definition of work steps. Each subcontractor will then be required to further define hazards and to develop

appropriate hazard controls. Work hazards will be defined and analyzed through the development of HAs and hazard specific permits.

For routine and non-routine O&M activities, hazard identification, and work control will be performed utilizing the work control procedure.

5.2.1 Categorize Hazards

Categorization of nuclear facilities was performed in accordance with the requirements of DOE-STD-1027-92, *Hazard Categorization and Accident Analysis Techniques for Compliance with DOE O 5480.23, Nuclear Safety Analysis Reports* and successor standards as defined in the OSMS Contract.

5.3 Develop and Implement Hazard Controls

Once the hazards have been identified and analyzed, appropriate preventive or mitigative systems, structures, components, engineered and administrative controls are identified and implemented. ISMS subdivide this process into four distinct steps. The first step in controlling hazards is to identify the standards and requirements associated with the work to be performed. These standards and requirements provide the necessary guidance to complete the second step, which is to determine options for hazard elimination/mitigation. The hazard control options are evaluated, and the third step is to choose the best option for eliminating or mitigating the hazard. The fourth step is to establish and implement selected controls.

5.3.1 Identify Standards and Requirements

A key element of ISMS is the selection of applicable standards/ regulations/ orders/ laws/ polices/ etc. and their updating/revision, as necessary.

These applicable standards are the result of a process of reviewing orders, laws, regulations, and standards to determine applicability to the scope of project work. During the operation and maintenance phase of the Project, the DOE directives identified in Section J of the Contract, as well as applicable federal, state, and local rules and regulations, provide the requirements sets for the Project.

Periodically, the Contractor Assurance Group monitors the DOE online database system, "Directives – Home Page Alerts" for changes (additions/deletions) in DOE Orders/Directives and federal regulations.

5.3.2 Identify Controls to Mitigate or Prevent Hazards

Controls to mitigate hazards are identified through TSRs, safety bases, permits, regulatory requirements, agreements, procedures, HA, and training. Work planning includes a step-by-step review of how the activity will be performed, which hazards are involved, and which controls are needed to eliminate or mitigate identified hazards. The types of engineered controls, administrative controls, and PPE used to mitigate or preclude all identified hazards are documented. The preferred order for controlling hazards is engineering (elimination, removal, substitution, etc.), administrative (procedures, plans, directives, etc.), and personal protection equipment (safety harness, respirator, etc.).

5.3.3 Establish Controls

Controls are also established in the facility safety basis documents to ensure that site personnel, the public, and the environment are protected from unacceptable environmental, safety, and health consequences due to accidents. Administrative ES&H controls for workers are tailored to the specific task. Details are included in procedures, work process documentation, safety basis documents, and TSRs. Engineering controls are put in place where necessary to protect workers, the site, and the environment.

At the task level, additional controls may be required based on the identification of controls required through the HA development process, OSMS-U-SHP-0211, Hazard Analysis. Activity sequences, prerequisites, and hold points related to ES&H are documented in the activity work plan. Based on the HA, administrative points related to ES&H are documented in the activity work plan or procedure, and administrative, engineering, or process controls necessary to mitigate each ES&H hazard are implemented. If site conditions change, work is suspended or stopped, hazards are reviewed, and, when needed, the existing ES&H controls are discontinued or modified with management concurrence to adapt to changed site conditions.

Personnel qualifications and competencies are derived from the identified SOW and associated hazards. The training and qualification process ensures that needed skills for the workforce are identified and developed, and document knowledge, experience, abilities, and competencies of the workforce for key positions requiring qualifications and implements the requirements of DOE O 426.2 Change 1. *Personnel Selection, Training, Qualification and Certification Requirements for DOE Nuclear Facilities.*

5.3.4 Implement Controls

Based on the work to be performed, the identified hazards, and methods of accomplishment, the appropriate tools are utilized to define and implement necessary controls. MCSA uses the following hazard control method hierarchy:

- Engineered controls
- Work practices and administrative controls that limit work exposures
- PPE

Engineered barriers are used, when possible, to control hazards and mitigate potential accidents. Administrative controls are used to maintain the integrity of the engineered systems (configuration management), add additional margin through the implementation of a QA Program, and provide the administrative structure for operations, maintenance, and ES&H programs. PPE is used when engineered barriers and administrative controls are either unavailable or insufficient to mitigate the hazard.

The implementation of approved safety basis documents and associated administrative controls ensures engineered barriers and operating parameters are maintained within the facility's safety basis when required.

Safety basis requirements are implemented via implementing procedures. Procedures provide directions to ensure that MCSA facilities are operated within their design basis and are used to support safe operations of those facilities. It is MCSA's policy that any time work cannot be performed consistently with applicable procedures, the work shall be stopped or suspended,

supervision notified, and the work shall remain stopped or suspended until the discrepancy is resolved.

Worker involvement in procedure development and verification is essential to ensure procedures are usable, technically correct, and contain the appropriate requirements. As part of the HA process, workers participate to identify hazards for the defined work.

Using experienced personnel who understand engineered and administrative controls, and the PPE requirements is essential to managing abnormal situations should these controls fail. Therefore, a training and qualification program supporting work execution is an essential element of ISMS. Prior to performing work, an employee must complete the applicable training, qualification, or certification program.

5.4 Perform Work Within Controls

To perform work safely, MCSA confirms a trained and qualified team is ready, that the work control documents are in place, monitors and oversees work during execution, and ensures that effective systems for managing change are in place. Each of these important steps in the safe performance of work is discussed in the following subsections.

5.4.1 Operational Authorization

The operations authorization for MCSA's nuclear facilities is established through authorization agreements. Facility managers authorize work to be performed in their facility in accordance with the approved safety basis.

5.4.2 Management of Change

MCSA follows a structured process to ensure that changes to the facility are reviewed against the governing safety basis documents and properly authorized. This process evaluates changes in design, proposed activities, work plans and procedures, and is also used to evaluate the discovery of changing conditions that may affect the safety basis. The change evaluation process encompasses the following:

- Screening of proposed changes to determine if a change evaluation is required.
- Evaluating proposed changes in design, activities, procedures, and work documentation to verify that a proposed change is within the existing safety basis and MCSA is authorized to make the changes, or if DOE authorization is needed.
- Performing annual updates of nuclear facility safety basis documents.

5.4.3 Suspend/Stop Work Authority

The authority and expectation to suspend work is extended to all MCSA and MCSA subcontractor employees without fear of reprisal employees are encouraged to approach all work with a questioning attitude and to satisfy themselves that it is safe to proceed. All employees are empowered to refuse to perform work that is unsafe, even if directed to do so by supervisors. Work that is suspected or proven to place workers, the public, or the environment at risk shall be suspended until it can be demonstrated that changes are made, and it is safe to proceed with the work.

5.5 Provide Feedback and Continuous Improvement

MCSA utilizes a variety of feedback and continuous improvement methods on an ongoing basis to evaluate the adequacy and effectiveness of the ISMS process and to assure continuous improvement. Data is collected at both the program (company) and task levels in the form of Performance Objectives, Measures, and Commitments (POMCs).

POMCs are metrics used to support decision making and are approved by the DOE. The results of the metrics are used to effectively improve performance by communicating issues and performance trends to management and DOE.

MCSA's goal is to maintain excellence in the implementation of the various programs and provide continuous effective and efficient feedback. Trends will be reported monthly in corporate metrics and in quarterly trending reports.

MCSA's management systems for feedback and continuous improvement include assessments, subcontract submittals, and reporting protocols. These management systems provide ongoing evaluation of both MCSA and subcontractor performance to ensure conformance to specified requirements and effective implementation. Examples of these systems include self-assessments and independent assessments to provide ongoing, formal feedback.

Identified issues are documented, causal analyses are performed, and corrective actions developed and tracked to closure. Analyses are conducted on a regular basis to identify trends for management action. Data from these processes are evaluated by senior management to identify opportunities for continuous improvement relative to the adequacy of the ISMS and its implementation, including the effectiveness of feedback and improvement activities. This information is used to identify and correct systemic issues.

All aspects of ISMS are subject to continuous improvement through assessment and feedback that will occur during each phase of the Project. Each level of *Figure 1. Elements of the Five Core Functions* depicts the safety management system core functions. Although the arrows indicate a general direction, these functions are not independent, sequential functions. They are a linked, interdependent collection of activities that may occur simultaneously. Outcomes during the accomplishment of one function may affect the other functions and, potentially, the entire system. The Project's safety management system is accomplished by performing the core functions in an iterative fashion.

One of the most essential elements of the MCSA assessment program is management presence in the workplace. Management observation of daily activities is considered one of the primary and most effective techniques for performance assessments. Post-job debriefs; safety meetings, assessments, and continuing training all take place where work is performed and provide face-to-face communication and feedback between the line supervisor and the worker. As appropriate, ISMS performance matrices (safety indicators) are developed, and the resulting data are reported monthly to DOE. Safety performance measures will be tracked and trended for the entire project.

To support continuous improvement, a periodic review of internal and external sources including assessments, nonconformance reports, lessons learned (both complex wide and internally), and occurrence reports will be performed, and any applicable information will be provided to appropriate company personnel.

6 IMPLEMENTING, MAINTAINING, AND IMPROVING INTEGRATED SAFETY MANAGEMENT

The Project continually strives to maintain and improve implementation of its established ISMS program. Maintenance and the ongoing improvement of the ISMS Program will ensure that work performed by MCSA, including its subcontractors, continues to be conducted in a manner that protects the health and safety of the worker, the public, and the environment.

Self-assessment is the process by which MCSA will measure performance in relationship to the ISMS standards and will identify areas needing improvement. Management assessment and independent assessment programs integrate QA requirements with the ISMS to provide feedback and identify areas requiring improvement. Independent assessments may include the option of having independent third-party surveillance from outside organizations. The QA Program Manager has the primary responsibility for the implementation of independent assessments.

Consistent with the PQAP and implementing procedures, the ESH&Q Manager coordinates the independent assessment schedule, and the Compliance Manager coordinates the management assessment schedule. Both the ISMS functions and principles are integrated, as appropriate, into each assessment.

The procedure for condition and nonconformance reporting is utilized to document external (including DOE or other regulators) oversight and enforcement and any resulting corrective actions. Trending data will be obtained from the corrective actions tracking system and other sources. The Compliance Manager will analyze and trend data and provide recommendations for improvement of ISMS practices to applicable MCSA senior managers.

The MCSA ESH&Q Manager and the MCSA Compliance Manager have the primary responsibility for the development, maintenance, and implementation for MCSA procedures that track the implementation of the feedback and continuous improvement process.

Project management encourages the review of positive and negative information, issues, and problems available through internal and external sources with the goal of project problem prevention and continuous improvement. Employees are empowered to use the MCSA condition reporting system to not only report safety problems but also lessons learned, and to use the process improvement database for employee suggestions, and conditions or situations, including worker suggestions that need management review for program improvements.

6.1 Tailoring

OSMS facilities can range in complexity and hazard potential from high hazard tasks, such as in hydrogen fluoride recovery and loading to much simpler tasks, such as performing cylinder surveillance. Therefore, implementation of the ISMS Program requires tailoring of the safety controls to fit the hazards and the work. Through tailoring, existing guidance and safety management processes are selectively applied to plan work activities to meet applicable, enforceable requirements while adequately protecting health, safety, and the environment. Subcontractors are provided clear direction on the tailoring process through contractually binding documentation.

DOE P 450.4A Change 1, Integrated Safety Management System Policy, and 10 CFR 851, Worker Safety and Health Program, state explicitly that administrative and engineering controls to prevent and mitigate hazards shall be tailored to the work and associated hazards. To meet

these requirements, MCSA personnel, and subcontractors at all levels tailor implementation of their ISMS processes (see Section 3.4 *Subcontractors* for further discussion of subcontractor ISMS responsibilities). Established safety management programs must deal effectively with the full spectrum of work types and work activities. These safety management systems allow flexibility in planning, analysis, and work preparation, which, in turn, includes tailoring the work and hazard controls to the work at hand. As a result, implementation of the Project's ISMS program description ensures high-quality work and compliance with predetermined performance expectations.

7 SUPPORTING INFORMATION

7.1 Referenced Procedures and Instructions

7.1.1 Requirement References

- 10 CFR 830, Nuclear Safety Management
- 10 CFR 835, Occupational Radiation Protection
- 10 CFR 851, Worker Safety and Health Program
- 48 CFR 970.5223-1, Integration of Environment, Safety and Health into Work Planning and Execution
- DOE O 414.1D, Change 2, Quality Assurance
- DOE P 450.4A, Change 1, Integrated Safety Management Policy

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